

## **DECnet/E Release Notes**

Order No. AA-M269B-TC

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**June 1985**

These Release Notes describe new features of the DECnet/E V2.1 system and explain the differences between V2.1 and previous versions of DECnet/E. System managers and system maintainers should read this document before installing the software.

<b>SUPERSESSION/UPDATE INFORMATION:</b>	This a new manual.
<b>OPERATING SYSTEM AND VERSION:</b>	RSTS/E      V9.0
<b>SOFTWARE VERSION:</b>	DECnet/E    V2.1

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# **Chapter 1: Introduction to DECnet/E V2.1**

## **1.1 Overview**

DECnet/E V2.1 is a Phase III network product that allows a suitably configured RSTS/E system to participate as a routing or nonrouting (end) node on a DIGITAL Network Architecture network. DECnet/E V2.1 is warranted for use only with Phase III and Phase IV DECnet products supplied by DIGITAL; V2.1 does not support connection to Phase II DECnet products. DECnet/E V2.1 must be used with RSTS/E V9.0 software; V2.1 will not run on earlier versions of RSTS/E. Likewise, RSTS/E V9.0 does not support earlier versions of DECnet/E.

## **1.2 New Features of DECnet/E V2.1**

DECnet/E V2.1 includes the following new features:

- Multiple privileges
- Monitor-level accounting information
- New quotas
- Long passwords
- New connect data block
- Hashed passwords
- Numeric node names
- New database format
- Database conversion utility
- Event logger changes
- NCP changes
- Record-level access to ISAM files using FAL

The following sections describe these features.

### 1.2.1 Multiple Privileges

Version 9.0 of RSTS/E, unlike previous versions, has multiple types of privileges. You must have the appropriate RSTS/E privilege assigned to execute privileged DECnet/E network functions (network management commands). The DECnet/E V2.1 monitor code checks each command you enter to verify that you have the required privilege.

Three RSTS/E privileges relate to DECnet/E network management:

- **SWCTL** (software control)  
You need this privilege to execute the following DECnet/E commands: SET EXECUTOR STATE, SET CIRCUIT STATE, SET SYSTEM, and ABORT LINK.
- **SWCFG** (software configuration)  
You need this privilege to execute the other DECnet/E SET commands and any DECnet/E DEFINE commands. (DEFINE commands establish parameters rather than set the system state.) You also need this privilege to show passwords using the SHOW/LIST NODE CHARACTERISTICS command. The other SHOW commands do not require privileges.
- **SHUTUP**  
You need this privilege to execute the NETOFF utility program.

See the *RSTS/E System Manager's Guide* for more information about multiple privileges.

### 1.2.2 Monitor-Level Accounting Verification

In previous versions of DECnet/E, the objects verified the accounting information in the Received Connect Initiate Messages. In DECnet/E V2.1, the monitor normally verifies the accounting information. Monitor verification centralizes security functions and allows for longer passwords (up to 14 characters) as implemented in RSTS/E V9.0.

In most cases, existing objects can use monitor-level accounting verification without any change in the code. However, in some cases, you may need to make small changes. For example, if the object assumes it was started by DECnet/E when it is started logged-out, and the object assumes it was started by the user when it is started logged-in, the object does not work with monitor-level verification because DECnet/E starts the object logged-in.

To avoid compatibility problems, you can control verification on each object using the network management command:

**SET/DEFINE OBJECT** *object-id* VERIFICATION *parameter*

There are three possible settings for the *parameter*.

- **PROGRAM**

Verification done by the object itself. The object verifies the accounting information. This is compatible with DECnet/E V2.0 and is the default for all objects except those supplied by DIGITAL. The object is started logged-out.

- **OFF**

No verification. The monitor ignores the accounting information, if any, in the Received Connect Initiate Message. The object is started logged-in to account [1,2]. In the Connect Initiate Message sent to the object, the user ID field contains the project-programmer number (PPN) of the account in which it was started, the password field contains a dummy password of "A", and the accounting information field is null.

The OFF setting is used for objects, such as LSN (Listen), that do not use access control information and only need to log in to some account.

- **ON**

Monitor verification. The monitor verifies the accounting information. If there is a user ID, the monitor interprets the user ID field as a PPN specification and compares the password field against the password for the PPN. If there is no user ID, the monitor uses the default account (if one is defined) and ignores the password. In both cases, if the system manager has defined a system password and specified that it should apply to network access, the monitor compares the accounting information field against the system password. See the *RSTS/E System Manager's Guide* for details. If the password is valid, the object is started in the PPN specified as the user ID (or the default PPN). In the Connect Initiate Message sent to the object, the user ID field contains the PPN of the account in which it was started, the password field contains a dummy password of "A", and the accounting information field is null.

The ON setting is used for objects, such as FAL (File Access Listener), that use access control to determine under what PPN the object will run.

### 1.2.3 New Quotas

Version 9.0 of RSTS/E has a number of additional quotas, including job and detached-job quotas. DECnet/E V2.1 enforces these quotas when it starts jobs in response to incoming connections where the job's object verification parameter is set as ON or OFF. Any accounts that DECnet objects use must have a detached and total job quota of 1 or more. In particular, the default DECnet account should have nonzero detached job quotas and nonzero total job quotas. For example, if an account used for file access has a detached job quota of zero, remote file access using FAL will fail with a resource allocation failure message.

Any account that you want to access through DECnet should have network access enabled in its account attributes. DECnet access is not considered interactive access, unless the access is through the NET program. Therefore, accounts you want to access through DECnet can be set as /NOINTERACTIVE if desired.

### 1.2.4 Long Passwords

Version 9.0 of RSTS/E supports longer passwords than previous RSTS/E versions (14 characters rather than 6). The program interfaces (Send/Receive FIP SYS calls) for previous versions of DECnet/E supported up to 8-character passwords. DECnet/E V2.1 supports up to 14-character passwords with one exception. The concise COBOL interface remains limited to an 8-character password, and does not support passwords that contain trailing blanks.

The Send Connect Initiate functions now accept a new format of the connect data block. The new format is identical to the old one except that the user ID, password, and accounting information fields now have 40 bytes each. The actual limit is 39 bytes, but the connect data block uses 40 bytes for word alignment. The monitor enforces the 39-byte limit. To distinguish this new connect data block format from the Version 2.0 format, the byte at position 9 (octal offset 10) in the connect data block is set to 1 rather than 0. The V2.0 format will continue to be supported.

The DECnet/E utilities NFT, NETCPY, and NCP, and the RMS DAPRES and DAPLIB code have been changed to use the new format.

In Received Connect Initiate Messages, the old password limits still apply for objects that have the PROGRAM object verification parameter (old style). Objects that have the ON object verification parameter accept the maximum length in each field, although both the password and account (system password) have only 14 significant characters.

The correct VERIFICATION parameter settings for DIGITAL-supplied objects are:

Object Number	Object Name	Verification Parameter
16	LSN	Off
17	FAL	On
19	NML	On
20	NETCPY	On
22	MROUTR	Program
23	NPKDVR	Off
25	MIRROR	On
26	EVTLSN	Off
27	MAIL	Off
30	DDMF	On
63	DTR	Off

### 1.2.5 New Connect Data Block

The old format connect data block for the Send Connect Initiate Call is shown in Figure 5-1 of the MACRO and FORTRAN Network Programming manuals, Figures 5-1 and 6-1 in the BASIC-PLUS Programming manual, and Figure 7-1 in the COBOL Network Programming manual.

The new format connect data block is shown in Figure 1 of this document. The new format differs from the old one as follows:

- The byte at position 9 (octal offset 10) contains a 1 rather than 0. The 1 identifies the new format connect data block.
- The User Identification field, now 40 bytes long, starts at byte position 49 (octal offset 60) as before, but ends at position 88 (octal offset 127).
- The Password descriptor moves over by 24 bytes:
  - The 0 byte is now at position 89 (octal offset 130).
  - The password length is at position 90 (octal offset 131).
  - The password itself starts at position 91 (octal offset 132) and ends at position 130 (octal offset 201). The password field is 40 bytes long.
- The Accounting Information descriptor moves over by 56 bytes:
  - The 0 byte is now at position 131 (octal offset 202).
  - The account length is at position 132 (octal offset 203).
  - The account field starts at position 133 (octal offset 204) and ends at position 172 (octal offset 253). The account field is 40 bytes long.
- The reserved field that started at position 93 in the old format connect data block is eliminated in the new format.

The new format connect data block is 172 bytes long. Therefore, in a send connect data call using the new format connect block, you must specify a byte count in the range 172 to 188 bytes (172 bytes for the connect data block plus 0 to 16 bytes of user data).

Decimal Position	Octal Offset		Octal Offset	Decimal Position
		REMOTE NODE NAME IN ASCII ( SPACE FILL TO 6 BYTES )	0	1
6	5		4	5
8	7	OBJECT TYPE	6	7
10	11	FORMAT	10	9
12	13	DESCRIPTOR LENGTH	12	11
•	•	1		
•	•	REMOTE DESCRIPTOR		
•	•			
22	25		24	21
24	27	GROUP CODE FOR FORMAT 2	26	23
26	31	USER CODE FOR FORMAT 2	30	25
28	33	OBJECT TYPE	32	27
30	35	FORMAT	34	29
		DESCRIPTOR LENGTH	36	31
		0		
		LOCAL DESCRIPTOR	•	•
•	•		•	•
•	•		•	•
44	53			
46	55	GROUP CODE FOR FORMAT 2	52	43
48	57	USER CODE FOR FORMAT 2	54	45
50	61	ID LENGTH	56	47
•	•	0	60	49
•	•	USER IDENTIFICATION	•	•
•	•		•	•
88	127		126	87
90	131	PASSWORD LENGTH	130	89
92	133	0	132	91
		PASSWORD		
130	201		200	129
132	203	ACCOUNT LENGTH	202	131
134	205	0	204	133
		ACCOUNTING INFORMATION		
172	253		252	171

Filled in by local  
NSP for Send  
Connect Initiate  
Message

**Figure 1: V2.1 Connect Data Block on Send Connect Initiate Message**

### 1.2.6 Hashed Passwords

Version 9.0 of RSTS/E supports nonreadable, or hashed, passwords. In previous versions of DECnet/E, the default account feature relied on password lookup, which cannot be done with hashed passwords. The DECnet/E V2.1 monitor-level verification does not require password lookup, and therefore works with hashed passwords.

At installation, the DECnet/E V2.1 NETCVT program sets up all objects included with DECnet/E V2.1 and the DECmail-11 and remote DATATRIEVE (DDMF) listeners for either ON or OFF object verification. If you use only these objects in your installation, set up the default account without password lookup.

The Message Router object is set for PROGRAM verification. Objects with PROGRAM verification require password lookup if the receiving program implements the default account feature. In this case, set up the default account with password lookup. In addition, objects that use PROGRAM verification and log in to a specific account, such as the Message Router and/or non-DIGITAL supplied objects, also require that you set up the account being logged in to as a password lookup account.

For more details on long and hashed passwords, see the *RSTS/E V9.0 Release Notes* and the *RSTS/E System Manager's Guide*.

### 1.2.7 Numeric Node Identifiers

Connect handling now allows connections from nodes not listed in the database. This allows large networks to deal more easily with databases that do not contain up-to-date information on node names. In such cases, DECnet gives the receiving program a node number rather than a node name in the connect message. DECnet also accepts a node number as a substitute for the node name in the send-connect function. Node number 0 is allowed as a special case to identify the local node. NCP and NML use this feature when you specify node numbers.

The acceptance of numeric node names has very little impact on programming. DECnet now allows a numeric string in the node name field of the connect data block, rather than only an alphanumeric node name. It identifies the two cases by looking for a letter. If the string contains only digits, DECnet assumes it is a node number.

On incoming connect initiate messages, DECnet continues to look up the remote node in the node database. If the node is found, DECnet enters the node name in the connect data block that it passes to the receiving object. If the node is not defined in the node database, DECnet changes the node number to an ASCII string and enters the string into the connect data block instead of the node name.

### 1.2.8 New Database Format

The node section of the database has a new format that uses a hash lookup technique for node names, rather than a sequential search. The new format improves the connect processing performance on large networks.

The file size for the new database file depends on the number of nodes in the database. You specify the number of nodes required when you run the NETCVT program (see the Database Conversion Utility below). If you create the database using the NCP command `DEFINE PERMANENT PARAMETER FILE`, NCP creates a database with room for 255 nodes.

NCP and NML have been changed to use with the new format database. The permanent parameter file has moved from `[1,2]NETPRM.SYS` to `[0,1]NETPRM.SYS`.

### 1.2.9 Database Conversion Utility

The DECnet/E V2.1 distribution kit includes the NETCVT program, which converts the database from the DECnet/E V2.0 to the DECnet/E V2.1 format. NETCVT uses the V2.0 permanent parameter file `[1,2]NETPRM.SYS` as input and produces the V2.1 permanent parameter file in `[0,1]NETPRM.SYS`.

A sample run of NETCVT follows:

```
RUN DECNET$:NETCVT<RET>

NETCVT V2.1-01 RSTS V9.0 with DECnet
Disk <SY:>? <RET>
Total number of nodes to allow for? 250
New database size is 124 blocks

Conversion complete
$
```

The first question (Disk <SY:>?) asks on what device the permanent database resides. Usually this is the system disk; if it is, press RETURN. If you are converting a database for another system, specify the name of the disk on which the database resides.

The second question asks for the total number of nodes defined in your database. Unlike the old format database, the new format allocates space only for the number of nodes you need and adds some additional space for efficient hash table use. The additional space is about 25% of the space you are allocated for the nodes you define.

Next, NETCVT reports the number of blocks needed for the database. The program then builds a new database in `[0,1]NETPRM.SYS` on the specified disk.

### 1.2.10 Event Logger Changes

The DECnet/E V2.1 event logger (EVTLOG) now logs data on new events and additional data. For a description of the new events and additional data accepted, see the *DECnet Network Management Architecture Specification*, Version 4.0.0 (Order Number AA-X437A-TK).

### 1.2.11 NCP Changes

The Network Control Program (NCP) utility has one new command to support the monitor-level accounting verification change in DECnet/E V2.1:

```
SET/DEFINE OBJECT xxx VERIFICATION parameter
```

The LIST/SHOW OBJECT xxx CHARACTERISTICS command displays the setting of the new VERIFICATION parameter.

In addition, there are changes to the NCP commands that control or display information on nodes. These commands now use the new database format of the network parameter file. The NCP message tables have also been updated to display all parameters defined in the latest version (Version 4.0.0) of the *DECnet Network Management Architecture Specification*.

### 1.2.12 NFT/FAL Changes

The NFT (Network File Transfer) and FAL (File Access Listener) utilities have been changed to support the new RSTS/E V9.0 Print/Batch Services (PBS) package. If PBS is active, the NFT PRINT command sends the print job to the NET\$PRINT queue, rather than sending it to the LP0 queue or the default queue. If PBS is not active, the NFT PRINT command sends the job to the old (OPSER-based) print spooler, as in the past.

The NFT SUBMIT command checks the file type. If the file type is .COM, the file is submitted to the PBS batch server and to the NET\$BATCH queue (unless PBS is not active). All other file types (including .CTL) are sent to the old (OPSER-based) batch processor.

Note that you can give the NET\$PRINT and NET\$BATCH queues any attributes you want, or you can delete them if you do not want network printing and/or batch job submission to your system. Because of this, the RSTS/E V8.0 feature patches numbered 31.21.1 and 31.23.2 are no longer available.

### 1.2.13 Record-Level Access to ISAM Files Using FAL

The FAL program now supports access to RMS-indexed files on nodes running DECnet/E V2.1. FAL supports the following RMS operations:

File access operations:

Create	Create an indexed file
Open	Open an indexed file for reading or writing

Record access operations:

Get	Get record using keyed access
Update	Update the current record
Put	Put record using keyed access
	Put record using sequential access
Delete	Delete current record
Free	Unlock all locked records
Flush	Write out all modified buffers
Find	Find record using keyed access
	Find record using sequential access

See the RMS-11 Documentation set for information on the use of RMS-indexed files.

FAL has a limited amount of information storage for Key Definition Attributes messages and Allocation Attributes messages. If FAL runs out of memory for message storage (probably due to the file having too many keys defined), FAL issues a file open error to the remote system.

As in DECnet/E V2.0, FAL does not support multiple data streams on a single file. The maximum record length that FAL can process is 512 bytes. Files with larger records cannot be accessed using record access; however, you can copy them using the NFT/BLOCK switch.

## 1.3 Notes and Restrictions on DECnet/E V2.1

### 1.3.1 Removal of the Alias Node Name Feature

The alias node name feature will be removed in the next release of DECnet/E. After V2.1, you will not be able to assign alias node names to destination nodes. If you use alias node names, you may want to prepare for this change before the release of the next DECnet/E version.

### 1.3.2 NCP Command Restrictions

The following NCP commands cannot use the new format of the network database file:

- SET/DEFINE ... LOGGING ... SINK NODE xxx
- SET/DEFINE ... LOGGING ... NODE xxx

Avoid using these commands because unpredictable problems may result, such as error messages or a corrupted network database file. These commands will be changed to use the new format in a future system update. Until then, keep your old format network database file (\$NETPRM.SYS). If you need to use the commands above to make file changes, you can use the DECnet/E V2.0 version of NCP to change the old database and then rerun the NETCVT program.

The NCP display format on "TELL vms-node SHOW LINE UNA-0 CHAR" produces garbled output.

### 1.3.3 Undocumented Restrictions on V2.0 NCP Commands

The following restrictions on using NCP commands are not documented. To avoid problems when using these NCP commands, you may want to add the restrictions to your *DECnet/E System Manager's Guide*. The page numbers indicate where the commands are discussed in the *DECnet/E System Manager's Guide*.

NCP Command	Restriction
SET/DEFINE CIRCUIT/KNOWN CIRCUITS ALL	Circuit state must be OFF. See page 4-8.
SET/DEFINE EXECUTOR/NODE ALL	Executor state must be OFF. See page 4-12.

SET/DEFINE LINE/KNOWN LINES ALL	Line must be OFF. See page 4-21.
SET/DEFINE NODE/KNOWN NODES ALL	Remote node state can be ON or OFF. See page 4-29.
CLEAR CIRCUIT/KNOWN CIRCUITS	All affected circuit states must be OFF. See page 4-55.
CLEAR/PURGE LINE	Disables all associated circuits. See page 4-59.

### 1.3.4 DECnet/E Utilities

The following restrictions apply to the DECnet/E NETACT and NFT/FAL utilities.

#### NETACT

For security reasons, DECnet/E no longer supports the use of the NETACT remote PPN/password database. NETACT.TSK has been removed from the distribution kit.

#### NFT/FAL

- The command "NFT SUBMIT node::file.ctl" deletes the control file without submitting it for BATCH processing. To avoid this problem, include an output node/file specification in the command. For example, instead of using the above command, enter "NFT SUBMIT node::file.tmp=node::file.ctl".
- File transfers over low-speed lines, for example 1200 baud, can sometimes produce timeout errors. If this occurs, restart the file transfer.
- When using the command "NFT PRINT \*.\*=node::file.\*", the last file that matches the wildcard specification is spooled to the printer twice. The other files in the wildcard list are printed only once.
- If a record format error occurs during a remote wildcard file access, NFT may stop wildcard processing at the point where the error occurred without reporting the error.
- When accessing a remote node that is running DECnet/E V2.0 (RSTS/E V8.0 or earlier), you must use a password of six characters or less. If you enter a password that is longer than six characters, the connection is rejected and the error messages that display do not indicate that the password is the problem. To access the node successfully, use the correct password.

### 1.3.5 Distributed DATATRIEVE

If you use Distributed DATATRIEVE (DDMF) and you install DDMF after installing DECnet/E V2.1 software, you must enter the following NCP command after installing the DDMF software:

**DEFINE OBJECT 30 VERIFICATION ON**

This command sets up DATATRIEVE for monitor-level verification. When using monitor-level verification, the DDMF program accepts any password length. However, the REMDTR program (Version V03.01) is currently limited to eight-character passwords.

If you install DDMF before installing DECnet/E V2.1 software, the NETCVT program sets up DDMF for monitor-level verification.

## Chapter 2: Documentation and Distribution Media

### 2.1 Documentation

These Release Notes and *Introduction to DECnet* are the only documents that have changed for DECnet/E V2.1. However, if you need DECnet/E documentation, see the list below. The complete DECnet/E documentation kit (order number QP692-GZ) includes the following documentation:

DIGITAL Order Number	Document Title
AA-J055D-TK	Introduction to DECnet
AA-M269B-TC	DECnet/E V2.1 Release Notes
AA-K714A-TC	DECnet/E V2.0 Network Installation Guide
AA-H505B-TC	DECnet/E V2.0 System Manager's Guide
AA-H504B-TC	DECnet/E V2.0 Guide to User Utilities
AA-L265A-TC	DECnet/E V2.0 Network Programming in MACRO-11
AA-H501B-TC	DECnet/E V2.0 Network Programming in BASIC-PLUS and BASIC-PLUS-2
AA-L266A-TC	DECnet/E V2.0 Network Programming in FORTRAN
AA-H503B-TC	DECnet/E V2.0 Network Programming in COBOL

### 2.2 Distribution Media

The pack ID for all media is DECNTD.

DIGITAL Order Number	Medium
AP-C886C-BC	9-track, 800 bpi magnetic tape
BB-J214C-BC	9-track, 1600 bpi magnetic tape
BC-K505B-BC	RL02 disk cartridge
AY-D742C-BC	RK07 disk cartridge

## 2.3 DECnet/E V2.1 Distribution Kits

The following list contains a directory of the files available in the container files on the DECnet/E V2.1 distribution kit.

### NOTE:

DECnet/E does not copy the contents of account UNSUPP\$: to your system during the DECnet/E installation procedure.

Name	.Typ	Size	Protection	HELP\$:
NETCPY	.HLP	4	< 60>	
NFTC	.HLP	12	< 60>	
NFTS	.HLP	28	< 60>	

Total of 44 blocks in 3 files in HELP\$:

Name	.Typ	Size	Protection	UNSUPP\$:
NFTDBG	.TSK	253C	<232>	
FALDBG	.TSK	224C	<232>	
NETUNS	.TSK	124C	<232>	

Total of 601 blocks in 3 files in UNSUPP\$:

Name	.Typ	Size	Protection	SYSGEN\$:
DECNET	.OBJ	61	< 60>	
NSPSUB	.OBJ	4	< 60>	
NSP	.OBJ	3	< 60>	
NET	.OBJ	41	< 60>	
TRN	.OBJ	3	< 60>	
SES	.OBJ	3	< 60>	
XDDVR	.OBJ	18	< 60>	
XDDINT	.OBJ	1	< 60>	

Total of 134 blocks in 8 files in SYSGEN\$:

Name	.Typ	Size	Protection	DECNET\$:
NPKDVR	.TSK	37C	<232>	
DTRECV	.TSK	75C	<104>	
LSN	.TSK	48C	<232>	
NETPAT	.SAV	4C	<104>	
NETFNC	.BAS	46	< 40>	
NETCVT	.TSK	45C	<104>	
NET	.TSK	71C	<232>	
MIRROR	.TSK	10C	<232>	
DTSEND	.TSK	69C	<104>	
TLK	.TSK	52C	<232>	
NETOFF	.TSK	42C	<232>	
NETCPY	.TSK	68C	<232>	

NCUCVT.TSK	49C	<104>
NETSLP.TSK	33C	<104>
NFTOVL.TSK	240C	<232>
NFTRLB.TSK	108C	<232>
FALOVL.TSK	212C	<232>
FALRLB.TSK	79C	<232>
EVTLOG.TSK	147C	<104>
NCP.TSK	245C	<232>
DECNET.COM	4	< 60>
NCPDEF.COM	19	< 60>
NTESTE.COM	8	< 60>
NTESTH.COM	13	< 60>
NTESTA.COM	13	< 60>

Total of 1737 blocks in 25 files in DECNET\$:

Name .Typ	Size	Protection	LB:
NETMLB.MLB	100	< 60>	
NFTRMS.ERR	35C	< 60>	

Total of 135 blocks in 2 files in LB:

Name .Typ	Size	Protection	xxn:[1,2]
NETMLB.SML	16	< 60>	

Total of 16 blocks in 1 file in xxn:[1,2]

Grand total of 2667 blocks in 42 files in xxn:[\*,\*]



## Chapter 3: Software Installation

### 3.1 Installing DECnet/E V2.1 Software

The installation procedure for DECnet/E V2.1 software has changed. To install DECnet/E V2.1, follow the instructions in this chapter instead of those found in chapter 1 of the *DECnet/E Network Installation Guide* (AA-K714A-TC).

To install DECnet/E V2.1 software, you need:

- RSTS/E V9.0 distribution media
- DECnet/E V2.1 distribution media
- Privileged account -- you must be logged in to an account that has at least the following privileges: MOUNT, INSTAL, TUNE, WREAD, WWRITE, and WACNT.

You can install DECnet/E during the RSTS/E installation procedure if you have the RSTS/E and DECnet/E distribution media. For information on installing DECnet/E with RSTS/E, see the *RSTS/E System Installation and Update Guide*. If you have a new system, see Part I. If you are upgrading a previous version of RSTS/E (V8.0, V7.2, or earlier), see Part II.

If you receive the DECnet/E V2.1 distribution media after the RSTS/E V9.0 software is installed, you can perform an online system installation using the INSTAL.COM command file. To access INSTAL.COM, use the following command:

```
@[0,1]INSTAL MONITOR
```

An example of the installation procedure appears in the next section of this document. For more information, see the *RSTS/E System Installation and Update Guide*. See Part III for general information on performing an online system installation. See Part I for a detailed explanation of how to respond to the prompts.

#### 3.1.1 Example of DECnet/E Online System Installation

```
@[0,1]INSTAL MONITOR
```

```
Deleting all global symbols
```

\* Starting dialogue phase \*

Please mount the RSTS/E Installation media and enter the name and unit number of the device.

Valid device types are: 'MM', 'MS', 'MT', 'DM', 'DL' or 'SY' (a response of SY allows monitor only)

Installation device <MMO:> :

Please enter the name and unit number of the disk to which you want to install the software. This disk should be physically mounted and write-enabled.

Target disk? <SY:> :

Assigning system logicals

Restoring required SYSGEN components

Use template monitor ?                    <Y >    Y

Template monitor's name ?                <current monitor>

New Monitor name ?                        <RSTS> <insert your monitor name>

Accept defaults ?                        <N >    N

Now you must specify the hardware configuration on which this RSTS/E system will run.

The following questions deal with the numbers and types of terminal interfaces on the system.

Accept Terminal defaults ?               <N >    Y

The following questions deal with the numbers and kinds of disk units on this system.

Accept Disk defaults ?                   <N >    Y

The following questions deal with the peripheral devices attached to this RSTS/E system.

Accept Peripheral defaults ?             <N >    N

TU16/TE16/TU45/TU77's ?	<01>	
TU10/TE10/TS03's ?	<00>	
TS11/TK25/TSV05/TU80's ?	<00>	
DEctapes ?	<00>	
Printers ?	<01>	
RX01/RX02's ?	<00>	
CR11/CM11 card reader ?	<N >	
CD11 card reader ?	<N >	
P.T. reader / punch ?	<N >	
DECnet network support ?	<Y >	Y
DMC11's/DMR11's ?	<05>	
DMV11's/DMP11's ?	<01>	
DMP11 unit 00 tributaries ?	<32>	3
KMC11's ?	<00>	
Extended buffering for LP ?	<Y >	
RJ2780 support ?	<N >	

The following questions deal with the capacity and features of this RSTS/E system provided at the system manager's option.

Accept Software defaults ?      <N >      Y

Restoring DECnet/E update components

Use RMS resident libraries in NFT and FAL? <yes>      Y

This requires the RMS resident libraries. If you have not already done so, you must select the RMS package (in the System Programs section).

\* End of dialogue phase \*

\* Starting build phase \*

Are you ready to proceed? <yes> Y

17-Apr-85 12:00 AM

Do you want SY0:SWAP1.SYS created? <yes> N

Please mount the DECnet/E Installation media and enter the name and unit number of the device.

Valid device types are: 'MM', 'MS', 'MT', 'DM', or 'DL'

DECnet/E installation device <MM0:> :

Restoring required components

Updating DECnet/E Monitor components

Creating RSTS/E monitor

This monitor has a valid buffer count

\* End of build phase \*

Deleting all global symbols

Deassigning system logicals

17-Apr-85 12:50 AM

System tape label default set to DOS

SY:[1,4]INSTAL.LOG is a log file of this session

## 3.2 Upgrading from DECnet/E V2.0 to V2.1

DECnet/E V2.0 users should remember to save the system/network parameter file from their V2.0 system, [1,2]NETPRM.SYS, and copy it onto their RSTS/E V9.0 system disk. DECnet/E V2.1 includes a utility, NETCVT, which translates that file into a new format (see Section 1.2.8).

Users who perform a RSTS/E V9.0 SYSGEN with DECnet/E V2.1 onto a copy of their previous V8.0/V2.0 system disk should delete the old DECnet/E V2.0 utilities to avoid confusion. Note that the V2.1 utilities are installed in the DECNET\$: directory, which is normally in [0,16], not in [1,2].

### 3.3 Using the Distribution Kit Control Files

The *DECnet/E Installation Guide* refers to control files to be used as models for your DECnet/E configuration. These files are now DCL command files and have the .COM file type:

Old V2.0 Format	New V2.1 Format
DECNET.CMD	DECNET.COM
NCPDEF.CTL	NCPDEF.COM
NTESTE.CTL	NTESTE.COM
NTESTH.CTL	NTESTH.COM
NTESTA.CTL	NTESTA.COM
NTEST2.CTL	(no longer available)
DTSDTR.CTL	(no longer available)



## Chapter 4: Software Performance Report (SPR) Guidelines

For DECnet/E SPRs, follow the guidelines in the *RSTS/E V9.0 Maintenance Notebook* and supply the additional information described below. Network problems are often difficult to reproduce with different physical configurations. The more information you supply with the SPR, the easier it will be for DIGITAL to find and fix problems.

### 4.1 General and Network Management Problems

For DECnet/E general and network management problems, include the following information in your SPR report:

- The dynamic status of circuits, nodes, and links at the time of the problem. This can be the output of a set of NCP SHOW ACTIVE xxx STATUS commands that display the current status of these entities. When relevant, you may also include the output of a set of NCP SHOW xxx COUNTERS commands that display network traffic and error counts.
- The events logged around the time of the problem. This can be a copy of the output of the event logger, either directly from the system console or indirectly from a disk file. For problems in communicating with another system, include event logs from both systems. Make sure all events are enabled.
- When possible, include the volatile and the permanent parameter files ([0,1]NSP0.SYS and [0,1]NETPRM.SYS) in machine-readable format. It is preferred that you submit this data in the form of a backup set on 9-track magnetic tape, 800 or 1600 bpi. Since much of the interaction between NCP and the system takes place through the parameter files, the files often contain data that is useful in isolating the source of the problem.

### 4.2 Remote File Access Problems

With any problem reports involving the DECnet/E file access utilities NFT and FAL, include full data on the files and systems accessed, as follows:

- A full directory listing of the source file, showing all attributes. If any part of the destination file exists, also include a full directory listing of that file.
- Information about the network nodes at the source and destination, especially if

one of them is a non-DECnet/E V2.1 system. In particular, include version numbers of the operating systems and the DECnet layered products.

- The event records generated by the DECnet/E V2.1 NFT and FAL utilities when files are accessed. On other systems, other access logs may be maintained. For instance, DECnet-RSX optionally logs file accesses to a system or user file. Supply any such information that is available.

### **4.3 Monitor-Related Problems**

The DECnet/E V2.1 monitor-level code includes the NSP, Transport (TRN), and Session Control (SES) modules, a set of FIP send/receive overlays, and the DMC/DMR and DMP/DMV drivers. With any crash report involving DECnet/E, you must include one of the following:

- Machine-readable copies of the monitor and CRASH.SYS files
- Full crash dump as printed by ANALYS, including memory dump, annotations, and symbol table sections.

Machine-readable copies of the monitor and CRASH.SYS files are preferred. When you provide machine-readable monitor and CRASH.SYS files, also include a machine-readable copy of the DECnet/E volatile parameter file, [0,1]NSP0.SYS. Copy this file after restarting the RSTS/E system and before starting DECnet because the DECnet startup procedure reinitializes [0,1]NSP0.SYS. The preferred form for machine-readable submissions is a backup set on magnetic tape at 800 or 1600 bpi.

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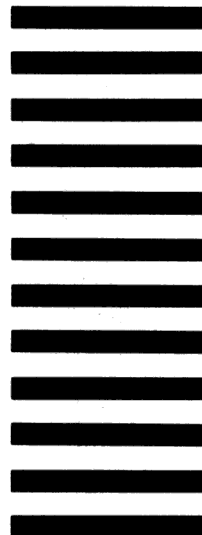
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